

Washington, D.C. 20240 (703/235-2771 or FTS 8/235-2771).

SUPPLEMENTARY INFORMATION:

Background

The smoky madtom (*Noturus baileyi*) was believed extinct until September 1980 when it was discovered by a U.S. Fish and Wildlife Service survey crew sampling in Citico Creek, a tributary of the Little Tennessee River in Monroe County, Tennessee. Presently, this is the only population known to exist. The species was originally discovered in 1957 in Abrams Creek, a Little Tennessee River tributary in the Great Smoky Mountains National Park, Blount County, Tennessee, by a Service crew which was treating the creek with a fish toxicant to remove unwanted fishes from the Chilhowee Reservoir watershed prior to the closure of Chilhowee Dam. This was a routine procedure at the time, designed to enhance the chances of establishing a trout fishery in the new reservoir. The smoky madtom specimens taken from Abrams Creek during this project were used by Taylor (1969) to describe the species.

A study of the smoky madtom, funded by the Service, was completed in November 1982 (Dinkins, 1982). That survey involved extensive sampling at 44 locations in the Little Tennessee River drainage in North Carolina and Tennessee; 2 tributaries in the Hiwassee River, Tennessee; and 1 tributary in the Pigeon River, Tennessee. Although some habitat looked favorable for the species, the smoky madtom was not found outside Citico Creek.

The species is known from a total of 6.5 miles of Citico Creek, primarily within the Cherokee National Forest. One individual was found about 1 mile below the National Forest's boundary, but this area (outside the area designated as critical habitat) contains little of the species' preferred habitat. The species' prime habitat and the rest of the individuals observed during the study (a total of 67 individuals) were located on Forest Service lands above the upper Citico Creek bridge on Mountain Settlement Road.

The biology of this madtom is poorly understood. However, this small (largest known individual was 2.9 inches in total length) member of the catfish family is probably nocturnal and likely feeds on aquatic insects. The fish has been found in various stages of breeding condition during the spring and summer, and nests (containing an average of 35 eggs) have been located under large slab rocks in pool areas during July (Dinkins, 1982). During the period of May to November,

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status and Designation of Critical Habitat for the Smoky Madtom (*Noturus baileyi*)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines the smoky madtom (*Noturus baileyi*), a small catfish, to be an endangered species and designates its critical habitat. This rule will implement Federal protection for the species and its critical habitat as provided by the Endangered Species Act of 1973, as amended. The smoky madtom was thought to be extinct when extirpated from Abrams Creek, Great Smoky Mountains National Park, Blount County, Tennessee, in 1957. It was rediscovered in Citico Creek in 1980, and the results of an extensive survey indicate that the species is now apparently restricted to approximately 6.5 miles of Citico Creek, primarily within the Cherokee National Forest, Monroe County, Tennessee. With this restricted range, a single catastrophic event could render the species extinct.

DATES: The effective date of this rule is November 26, 1984.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Asheville Endangered Species Field Station, 100 Otis Street, Room 224, Asheville, North Carolina 28801 (704/259-0321 or FTS 8/672-0321).

FOR FURTHER INFORMATION CONTACT: Mr. Richard G. Biggins, Asheville Endangered Species Field Station, U.S. Fish and Wildlife Service, 100 Otis Street, Room 224, Asheville, North Carolina 28801 (704/259-0321 or FTS 8/672-0321) or Mr. John L. Spinks, Jr., Chief, Office of Endangered Species, U.S. Fish and Wildlife Service,

smoky madtoms are generally found associated with palm-sized slab rock at either the crest or base of riffles.

The apparent limited distribution of this species leaves it vulnerable to a single catastrophic event which could completely eliminate it. The fish's habitat could also be degraded by logging activities, road and bridge construction and maintenance, mineral exploration, and other disturbances within the Citico Creek watershed if these activities are not carefully designed and carried out with the survival of the species in mind.

On June 22, 1982, the Service published, in the *Federal Register* (47 FR 26878), a notice that a review of this species' status was being conducted. That notice requested data on the species' status and solicited information on environmental and economic impacts and the effects on small businesses that could result if the species and its critical habitat were listed. The following is a summary of each of the responses received.

Tennessee Wildlife Resources Agency recommended listing the species as an endangered species and designating critical habitat. They also noted that extreme care was needed to ensure that no habitat deterioration took place in the creek or its watershed.

Tennessee Department of Public Health recommended the species and its critical habitat in Citico Creek watershed be listed under the Endangered Species Act. They expressed concern for the species if mineral exploration occurred in the watershed. They stated that the watershed contains geologic formations of anakeesta shale. Anakeesta has a 10 percent sulfide content and forms sulfuric acid upon contact with water. They cautioned that mineral explorations could expose anakeesta and result in acid contamination of Citico Creek. They further explained that acid which enters the watershed can oxidize or bring into solution aluminum and other metals that are naturally found in the soils. These metals, especially aluminum, are extremely toxic to the aquatic ecosystem.

U.S. Department of Agriculture, Forest Service, stated they had no proposed activities directly involving Citico Creek. They expressed concern that designating critical habitat could have the most significant effect on future timber sales, accompanying road construction, and on possible mineral exploration in the watershed. However, they said no road crossings of Citico Creek were being planned and significant exploration for oil and gas

was unlikely. In summary, they stated " * * * we know of no existing or proposed activity that would affect the quality of Citico Creek, nor do we know of significant impacts to small businesses or organizations."

U.S. Department of the Interior, National Park Service, responded that their agency did not have any jurisdiction over the area where the species is presently found. However, they did urge protection for the species and its habitat. The species was first discovered in Abrams Creek in Blount County, Tennessee, which is within the Great Smoky Mountains National Park. The Park Service has shown considerable interest in reestablishing the species in Abrams Creek.

U.S. Department of Transportation, Federal Highway Administration, informed the Service that a Federal aid secondary road system parallels Citico Creek at the lower end of the creek section where one smoky madtom was found. This creek section is below the designated critical habitat. Although no State requests are pending, Federal aid funds for this short road section may be requested in the future. In spite of potential projects which may impact the species, they state: "We see no reason why these projects could not be implemented with proper measures to prevent significant impacts on the quality of Citico Creek. Listing of the species and designating critical habitat may result in additional coordination/consultation efforts but should not have any significant effect on the Federal aid highway program."

Department of the Army, Corps of Engineers, Office of Chief Engineer, responded that the designation of Citico Creek as critical habitat for the smoky madtom would not have a significant effect on any Corps of Engineers program. They further stated: "The Corps of Engineers concurs with the preservation of the species through listing and the designation of its critical habitat."

U.S. Soil Conservation Service had no proposed or planned projects in the Citico Creek watershed.

U.S. Nuclear Regulatory Commission reported they had no existing or proposed activities which might affect the species or its habitat.

Federal Energy Regulatory Commission reported that at this time they had no licensed project or preliminary permits issued in the area inhabited by the smoky madtom.

Tennessee Valley Authority stated the area of Citico Creek where the madtom existed was not owned or controlled by TVA. However, the agency had been involved in planning,

reviewing, and implementing proposals in this Creek's watershed. They did not report on any presently ongoing projects that would impact the species.

We received one comment on the biology and status of the species from the private individual conducting the smoky madtom status survey for the Service. He recommended the species be listed as endangered and a portion of Citico Creek be designated as critical habitat. This information was utilized in the preparation of the proposal.

On November 21, 1983, the Service published, in the *Federal Register* (48 FR 52612), a proposal to list the smoky madtom as an endangered species and to designate its critical habitat. That proposal provided information on the species' biology, status, threats, and the potential implications of listing. The proposal also solicited comments on the species and potential impacts of the proposed critical habitat determination.

Summary of Comments and Recommendations

In the November 21, 1983, proposed rule (48 FR 52612) and associated notifications, all interested parties were requested to submit factual reports or information which might contribute to the development of a final rule. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. A newspaper notice was published in the *Maryville Daily Times* on December 21, 1983, which invited general public comment. Five comments were received and are discussed below.

Tennessee Wildlife Resources Agency concurred with the proposal to list the species and its critical habitat and stated the Service had adequately described the types of activities subject to impact by the listing action. They concluded the proposed action would be beneficial to the smoky madtom and the existing trout fishery of Citico Creek.

U.S. Department of Agriculture, Forest Service, responded that they envisioned no significant change in their management and protection of the Citico Creek habitat but were prepared, if necessary, to modify their management of the Creek to maintain and enhance the smoky madtom. They further stated that listing would likely benefit the species' enhancement opportunities through national recognition, increased interagency cooperation, and definitive multi-agency objectives.

Department of the Army, Corps of Engineers, Office of Chief Engineer, stated, "The listing of the smoky

madtom and designation of its critical habitat would not have a significant effect on U.S. Army Corps of Engineers programs. Further, the Corps of Engineers concurs with the preservation of the species through listing and the designation of its critical habitat."

Tennessee Valley Authority felt the listing action would not impact any of their programs or environmental considerations in the area. They also stated that, based on the apparent limited range of the species, it should receive protection under the Endangered Species Act.

U.S. Federal Energy Regulatory Commission stated they were forwarding our letter to their Washington, D.C., office for comments. We have received no further comments from the Commission.

The Service agrees with the comments that the smoky madtom qualifies for protection under the Endangered Species Act, and concurs that the recognition provided by listing will likely benefit the species and its habitat.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the smoky madtom should be classified as an endangered species. Procedures found at Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (codified at 50 CFR Part 424; under revision to accommodate 1982 Amendments—see proposal at 48 FR 36062, August 8, 1983) were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in Section 4(a)(1). These factors and their application to the smoky madtom (*Noturus baileyi*) are as follows:

A. The present or threatened destruction, modification, or curtailment of its habitat or range. The smoky madtom is presently known from only 6.5 miles of Citico Creek. With such a limited distribution, the species could be rendered extinct by a single catastrophic event, either natural or human-related. Potential threats to the species and its critical habitat could also come from logging activities, road and bridge construction and maintenance, mineral exploration and mining, and other projects in the watershed if these activities are not planned and implemented with the survival of the species in mind.

Other than the potential soil erosion and siltation problems associated with any land disturbance, a more serious

problem could arise in this watershed. The Citico Creek watershed contains geologic formations of anakeesta shale, an acid-bearing rock which has caused problems in the past. Bergendahl *et al.* (1977) reported that in the 1970s a formation of anakeesta was exposed during construction of the Tellico-Robbinsville highway. Acid leaching from a road cut increased the concentration of sulfates, heavy metals, and acidity in Grassy Branch, a tributary of the South Fork Citico Creek. Surveys of Grassy Branch in 1978 revealed no fish life. Attempts have been made to mitigate this problem, but they have not been entirely successful. Other formations of anakeesta do exist in the watershed, and there is a danger that they too could be exposed during construction and mining activities.

B. Overutilization for commercial, recreational, scientific, or educational purposes. There is no evidence of overutilization for this species.

C. Disease or predation. There is no evidence of threats from disease or predation.

D. The inadequacy of existing regulatory mechanisms. Tennessee State law prohibits the taking of the smoky madtom without a permit. See Tenn. Code Ann. section 70-8-104. This law also provides a mechanism which encourages the protection of the fish's habitat. Federal listing would provide necessary additional protection for the species by requiring Federal agencies to consult with the Service when projects they fund, authorize, or carry out may affect the species.

E. Other natural or manmade factors affecting its continued existence. Several species of madtoms, for still unexplained reasons, have been extirpated from portions of their range. Etnier and Jenkins (1981) speculated that this may " * * * in addition to visible habitat degradation, be related to their being unable to cope with olfactory 'noise' being added to riverine ecosystems in the form of a wide variety of complex organic chemicals that may occur only in trace amounts." Organic pollution is minimal in the Citico Creek system. However, if madtoms are adversely impacted by increased concentrations of complex organic chemicals, any increase in these materials could cause a problem for this isolated population.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list the smoky madtom as an endangered species with

critical habitat. The fish's present restricted range (6.5 river miles) makes it vulnerable to a single catastrophic event. Therefore, threatened status would not be appropriate. Critical habitat is being designated concurrently as its delineation will aid in the protection and recovery of the species (see Critical Habitat section of this rule). A decision to take no action would exclude the smoky madtom from needed protection available under the Endangered Species Act.

Critical Habitat

Critical habitat, as defined in Section 3(5) of the Act, means: (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection, and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Section 4(a)(3) of the Act requires that critical habitat be designated to the maximum extent prudent and determinable concurrently with the determination that a species is endangered or threatened. Critical habitat is being designated for the smoky madtom to include Citico Creek, Cherokee National Forest, Monroe County, Tennessee, from the Cherokee National Forest boundary at upper Citico Bridge on Mountain Settlement Road (approximately creek mile 4.3) upstream to the confluence of Citico Creek with Barkcamp Branch (approximately creek mile 10.8).

As specified in the listing regulations (50 CFR 424.12(b)), the Service shall consider, in determining what areas are critical habitat, those physiological, behavioral, ecological, and evolutionary requirements essential to the conservation of the species and that may require special management consideration or protection. These requirements include, but are not limited to: (1) Space for individual and population growth and normal behavior; (2) food, water, air, light, minerals, or other natural or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing of offspring, * * * and, generally (5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distribution of a species.

In addition to the present high water quality in Citico Creek, the smoky madtom requires run/pool areas with pea-size gravel substrate containing scattered large flat rocks for nesting cover. The species utilizes palm-sized slab rocks for cover and relatively silt-free riffle areas during other times of the year. The area designated as critical habitat provides the smoky madtom with all of the necessary constituent elements for completion of its life cycle. If the quality of this creek section can be maintained near its present level and no catastrophic event occurs, the species will likely continue to survive in Citico Creek.

Section 4(b)(8) of the Act requires, for any proposed or final regulation that designates critical habitat, a brief description and evaluation of those activities (public or private) which may adversely modify such habitat or may be affected by such designation. Activities which presently occur within the critical habitat include fishing, swimming, camping, nature study, and scientific research. These activities, at their present use level, do not appear to be adversely impacting critical habitat.

There are activities which do or could occur within the Citico Creek watershed and which may be affected by designating critical habitat. They include, in part, mineral exploration and mining, bridge and road construction and maintenance, logging, off-road vehicle use, and stream alterations. If not controlled, these activities, along with others that alter the watershed, could degrade the water and substrate quality of Citico Creek by increasing siltation, water temperatures, organic pollutants, acidity, heavy metal concentrations, and extremes in water flow. If any of these activities may affect the critical habitat and are authorized, funded, or carried out by a Federal agency, Section 7(a)(2) of the Act, as amended, requires the agency to consult with the Service to ensure that its action(s) is (are) not likely to destroy or adversely modify critical habitat.

As required by Section 4(b)(2) of the Act, the Service has considered economic and other impacts of designating critical habitat for the smoky madtom. The information for this analysis was supplied to the Service by Federal, State, and local agencies, governmental entities, and interested parties in their responses to the Service's request for this information as part of a June 22, 1982, notice of review published in the **Federal Register** (47 FR 26878) and a November 21, 1983, proposed rule published in the **Federal Register** (48 FR 52612). Neither the

notice of review or the proposal to designate critical habitat brought forth economic or other impacts to warrant the adjustment of critical habitat in this final rule.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402 and are now under revision (see proposal at 48 FR 29990; June 29, 1983). Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into consultation with the Service. As covered earlier in this rule, both the U.S. Forest Service, which has jurisdiction over the Cherokee National Forest, and the Federal Highway Administration, which provides Federal aid funds for upkeep of the road paralleling the lower section of Citico Creek below the critical habitat, have stated that they have no existing or proposed projects that would significantly impact Citico Creek.

Federal activities that could impact the species and its habitat in the future include, but are not limited to, the following: Issuance of permits for mineral exploration, timber sales, recreational development, stream alterations, road and bridge construction and maintenance, and implementation of forest management plans. It has been the experience of the Service that the large majority of Section 7 consultations are resolved so that the species is protected and the project can continue.

The Act and its implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered fish and wildlife. These prohibitions, in part, would make it illegal for any person subject to the jurisdiction of the United States to take, import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also would be illegal to possess, sell, deliver, carry, transport, or ship any such wildlife which was illegally taken. Certain exceptions would apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered animal species under certain circumstances. Applicable regulations governing permits are at 50 CFR 17.22. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to Section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

Regulatory Flexibility Act and Executive Order 12291

The Department of the Interior has determined that designation of critical habitat for this species will not constitute a major rule under Executive Order 12291 and certifies that this designation will not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. Section 601 *et seq.*). The entire critical habitat area is owned and administered by the Forest Service. Present and planned uses of the critical habitat area and the watershed above it are compatible with the critical habitat designation. No activities having Federal involvement are presently known that would affect or be affected by the designation. Consequently, no significant economic or other impacts are expected to result from the designation of critical habitat for the smoky madtom. No direct costs,

enforcement costs, or record-keeping requirements are imposed on small entities by the designation. Further, the rule contains no information collection or recordkeeping requirements as defined by the Paperwork Reduction Act of 1980. These determinations are based on a Determination of Effects that is available at the U.S. Fish and Wildlife Service, Office of Endangered Species, 1000 N. Glebe Road, Arlington, Virginia.

Literature Cited

- Bergendahl, B.S., J.L. Blackburn, and G.L. Klinedinst. 1977. Report on the geological and water quality of Tellico-Robbinsville Road. Station 804+85+ to 956+10+. Region 15 Federal Highway Administration.
- Dinkins, G.R. 1982. Status survey of the smoky madtom (*Noturus baileyi*): final report under contract (Number 14-16-004-81-060) to U.S. Fish and Wildlife Service, Asheville, North Carolina. 33 pp.

Etnier, D.A., and R.E. Jenkins. 1981. *Noturus stanauli*, a new madtom catfish (Ictaluridae) from the Clinch and Duck Rivers, Tennessee. Bull. Ala. Mus. Nat. Hist. 5:17-22.

Taylor, W.R. 1969. A revision of the genus *Noturus* *Refinesque* with an analysis of higher groups of Ictaluridae. (*Noturus baileyi* pp. 141-144). Bull. U.S. Nat. Mus., No. 282, p. 315.

Author

The primary author of this final rule is Richard G. Biggins, Asheville Endangered Species Field Station, U.S. Fish and Wildlife Service, 100 Otis Street, Room 224, Asheville, North Carolina 28801 (704/259-0321 or FTS 8/672-0321).

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife.
Fish, Marine mammals, Plants (agriculture).

Proposed Regulations Promulgation

PART 17—[AMENDED]

Accordingly, Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for Part 17 reads as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. Amend § 17.11(h) by adding the following, in alphabetical order, under fish to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
FISHES							
Madtom, Smoky	<i>Noturus baileyi</i>	U.S.A. (TN)	Entire	E	163	17.95(e)	NA

3. Amend § 17.95(e) by adding critical habitat for the smoky madtom as follows:

§ 17.95 Critical habitat—fish and wildlife.

(e) Fishes.

* * * * *

Smoky madtom (*Noturus baileyi*)

Tennessee, Monroe County, Citico Creek, Cherokee National Forest. Citico Creek from the Cherokee National Forest boundary at upper Citico Bridge on Mountain Settlement Road (approximately creek mile 4.3) upstream to the confluence of Citico Creek with Barkcamp Branch (approximately creek mile 10.8).

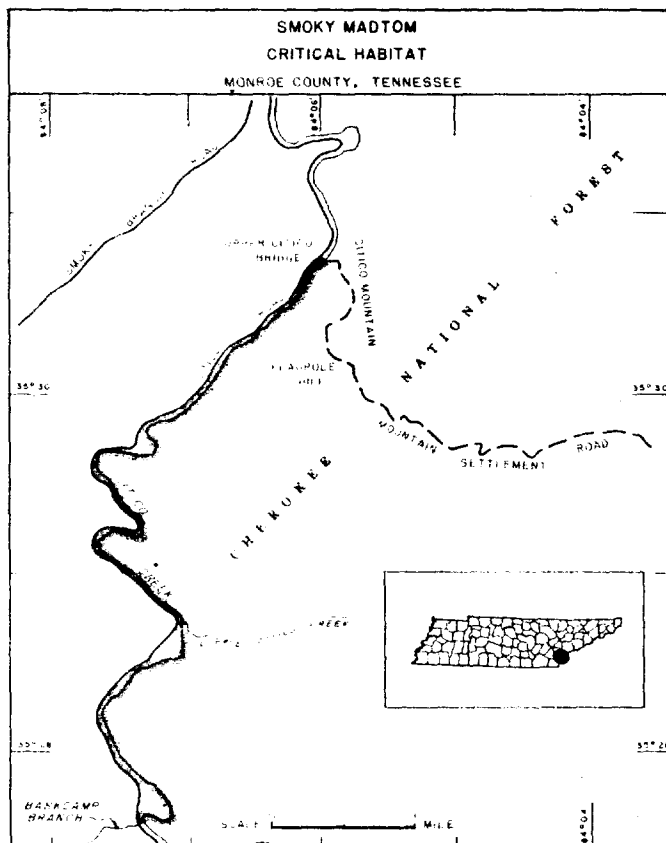
Constituent elements of the critical habitat include the present good water quality in Citico Creek and run/pool areas with relatively silt-free pea-size gravel substrate containing scattered large flat rocks for breeding habitat. The species utilizes palm-size slab rocks for cover and relatively silt-free riffle areas during other times of the year. The area designated as critical habitat provides the smoky madtom with all of the necessary constituent elements for completion of its life cycle.

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Dated: October 10, 1984.

G. Ray Arnett,

Assistant Secretary for Fish and Wildlife and Parks.



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